TECHNICAL REVIEW DOCUMENT for OPERATING PERMIT 95OPPB089

to be issued to:

CF&I Steel, L.P. Pueblo - Seamless Mill Pueblo County Source ID 1010048

Prepared by Michael E. Jensen August 25, 1998

I. PURPOSE:

This document establishes the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Operating Permit proposed for this site. It is designed for reference during review of the proposed permit by the EPA and during Public Comment. This narrative is intended only as an adjunct for the reviewer and has no legal standing. Conclusions in this document are based on information provided in the original application submittal of December 8, 1995, as well as numerous telephone contacts with the applicant.

On April 16, 1998, the Colorado Air Quality Control Commission directed the Division to implement new procedures regarding the use of short term emission and production/throughput limits on Construction Permits. These procedures are being directly implemented in all Operating Permits that had not started their Public Comment period as of April 16, 1998. All short term emission and production/throughput limits that appeared in the Construction Permits associated with this facility that are not required by a specific State or Federal standard or by the above referenced Division procedures have been deleted and all annual emission and production/throughput limits converted to a rolling twelve (12) month total. Note that, if applicable, appropriate modeling to demonstrate compliance with the National Ambient Air Quality Standards was conducted as part of the Construction Permit processing procedures. If required by this permit, portable monitoring results and/or EPA reference test method results will be multiplied by 8760 hours for comparison to annual emission limits unless there is a specific condition in the permit restricting the hours of operation.

II. Source Description:

The steel plant is located in Pueblo County at the south edge of the City of Pueblo, Colorado. The area in which the plant operates is designated as attainment for all criteria pollutants. The total plant emissions classify the plant as a major stationary source with respect to Prevention of Significant Deterioration (PSD) requirements. The Title V application states the seamless product production operations are not subject to the provisions of the Accidental Release Plan Provisions of Section 112 (r)(7) of the Clean Air Act.

CF&I Steel, L.P. (CF&I) uses two (2) electric arc furnaces to produce steel. The steel is then used in the production of various steel products. CF&I elected to divide the plant by major production function and submit separate Title V permits for each production function. This places the compliance responsibility on the designated production manager making the operating, budget and scheduling decisions. For this document the word 'Mill' will be used to refer to the various processes related to the production function. The word 'Mill' is not referring to a separate facility. The following separate Title V permit applications were submitted for the CF&I plant:

Rail Mill 95OPPB086 Steelmaking 95OPPB097 Rod/Bar Mill 95OPPB088 Utilities 95OPPB098

Seamless Mill 95OPPB089

The sources addressed in this operating permit are those related to the portion of the plant dedicated to the production of seamless steel casing and tubes. The process requires three (3) furnaces, five (5) milling operations, and three (3) painting operations to take the whole billets of steel and form tubing and casing. The units involved with the production are:

Rotary Furnace - Steel billets are heated for milling

Quench Furnace - Casing is reheated for better grain structure, then quenched and tempered

Tempering Furnace #1 - Casing reheated to increase strength

Coating and ID Painting - Each shell or tube is painted to preserve the shell.

Couplings are painted before placement on shell ends. Steel billets and tubes are painted for QA/QC identification.

There is one slightly different aspect about the furnaces worth noting. The rotary furnace is equipped with a conventional stack discharging to the atmosphere. The other furnaces discharges their emissions inside the structure.

The following tables display the Potential to Emit for the individual production processes as reported in the separate Title V applications, and the total Potential to Emit for the plant. The actual emissions reported in the Division database for the 1996 data year are included for comparative purposes.

SEAMLESS POTENTIAL TO EMIT, TONS PER YEAR

BEHIVIEEDS TOTELVINIE TO ENTITY TOTAL TEXT								
	PM	PM_{10}	NO_X	SO_2	VOC	CO		
Rotary Furnace	5.03	5.03	552.5	0.60	1.40	40.3		
Quench Furnace	5.10	5.10	52.2	0.22	1.04	13.0		
Tempering Furnace #1	1.8	1.8	18.3	0.08	0.37	4.58		
Paint Use					115.5			
Rolling Mill					10.0			
TOTALS	11.9	11.9	623.0	0.90	128.3	57.8		
Division Database - 1996 Actual Emissions	2.31	2.31	272.2	0.46	117.6	28.9		

PLANT POTENTIAL TO EMIT, TONS PER YEAR

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	PM	PM ₁₀	NO_X	SO_2	VOC	CO	Lead	
Rail Mill	1.80	1.80	198.3	0.20	12.4	14.4		
Rod/Bar Mill	1.97	1.97	216.2	0.24	28.8	15.7		
Seamless Mill	11.9	11.9	623.0	0.90	128.3	57.8		
Steelmaking	368.1	212.6	707.3	779.1	390.9	20,047	10.3	
Utilities	273.6	163.1			50.3			
TOTAL	657.4	391.4	1745	780.4	610.7	20135	10.3	
Division Database - 1996 Actual Emissions	151.2	94.6	1,077	317.9	248.9	1,900	0.0017	

PTE PLANT EMISSIONS, POUNDS PER YEAR

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	Rail	Rod/Bar	Seamless	Steel	Utilities	TOTALS	Division Database 1996 Plant Totals
Stryene 100425 ^a		43200	18000			61200	
Ethylbenzene 100414		4800	2000		268	7068	
Toluene 108883	6000	800	5000		268	12068	4980
MIBK 108101	1600	200	1000			2800	
Arsenic Compounds				50		50	12
Cadmium Compounds				556		556	111
Chromium Compounds				1902		1902	689
Mercury				238		238	
Manganese				29460		29460	
Nickel Compounds				238		238	
Ferromanganese				6		6	
Silicomanganese				278		278	
Ferrochromium				20		20	
Hydrochloric Acid 7647010						326	
Methanol 67561	2400		800			3200	
2-Butoxyethanol 111672			800			800	
Xylene 1330207			6600		538	7138	796
MEK 78933			4200			4200	
Trichloroethane 71556			180			180	
Glycol ethers	400		5800			6200	

TCA 79005			268	268	
Perchloroethylene 127184			268	268	320
Methylene chloride 75092	7000			7000	
Hexane					9560
Benzene					19414
Lead Compounds					533

^a Chemical Abstract Services identification number

Hexane, benzene and the lead compounds are reported in the 1996 database but not in the Title V application. These hazardous air pollutants were emitted in the past but were no longer in use at the time the Title V application was prepared. CF&I has not submitted a Revised APEN to report zero emissions for these hazardous air pollutants.

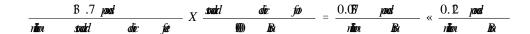
III. EMISSION SOURCES:

The following sources are specifically regulated under terms and conditions of the Operating Permit for this production center.

Salem Rotary Furnace

- **1. Applicable Requirements:** This source was grandfathered from the regulatory requirement for a construction permit. There has been no modifications or reconstruction on the furnace since January 30, 1979, therefore the New Source Performance Standards (NSPS), Subpart Db, and Regulation No. 6, Part B §II.C and §II.D do not apply.
- **2. Emission Factors:** The furnace burns only natural gas. The emission factors were selected from AP-42. There is no control equipment on the furnace stack so the emission factors can be combined with the fuel consumption to calculate the estimated emissions.
- **3. Monitoring Plan**: Only the fuel use needs to be monitored because the estimated emissions are calculated from the fuel use. The permittee indicated that burning pipeline quality natural gas was sufficient for demonstrating compliance with the opacity, sulfur content and particulate limitations and the Division agrees. Although the emissions of sulfur dioxide are dependent on the sulfur content of the fuel, the Division does not believe that the sulfur content of the pipeline quality natural gas varies excessively nor is it expected the

sulfur content of the natural gas will exceed 1%. The following calculation demonstrates that the estimated particulate emissions for natural gas combustion are only a fraction of the Regulation No. 1 limitation.



The permittee is to provide an annual certification that only pipeline quality natural gas is burned.

There is currently no emission factor available for process related emissions. The Division agrees with the permittee determination that, based on current information, the processing of the steel would not be expected to produce significant particulate emissions. No compliance demonstration is therefore required.

4. Compliance Status: The Division accepts that this source was in compliance at the time the application was prepared based on the information provided in the application and other information available.

Celas Quench Furnace

- **1. Applicable Requirements:** This source was grandfathered from the regulatory requirement for a construction permit. There has been no modifications or reconstruction on the furnace since January 30, 1979, therefore the New Source Performance Standards (NSPS) Subpart Db, and Regulation No. 6 Part B §II do not apply.
- **2. Emission Factors:** The furnace burns only natural gas. The emission factors were selected from AP-42. There is no control equipment on the furnace stack so the emission factors can be combined with the fuel consumption to calculate the estimated emissions.
- **3. Monitoring Plan**: Only the fuel use needs to be monitored since the estimated emissions are calculated from the fuel use. The permittee indicated that burning pipeline quality natural gas was sufficient for demonstrating compliance with the opacity, sulfur content and particulate limitations and the Division agrees. Although the emissions of sulfur dioxide are dependent on the sulfur content of the fuel, the Division does not believe that the sulfur content of the pipeline quality natural gas varies excessively nor is it expected the sulfur content of the natural gas will exceed 1%. The following calculation demonstrates that the estimated particulate emissions for natural gas combustion are only a fraction of the Regulation No. 1 limitation.



The permittee is to provide an annual certification that only pipeline quality natural gas is burned.

There is currently no emission factor available for process related emissions. The Division agrees with the permittee determination that, based on the current information available, the processing of the steel would not be expected to produce significant particulate emissions. No compliance demonstration is therefore required.

4. Compliance Status: The Division accepts that this source was in compliance at the time the application was prepared based on the information provided in the application and other information available.

Rust Tempering Furnace #1

- **1. Applicable Requirements:** This source was grandfathered from the regulatory requirement for a construction permit. There has been no modifications or reconstruction on the furnace since January 30, 1979, therefore the New Source Performance Standards (NSPS) Subpart Db, and Regulation No. 6 Part B §II do not apply.
- **2. Emission Factors:** The furnace burns only natural gas. The emission factors were selected from AP-42. There is no control equipment on the furnace stack so the emission factors can be combined with the fuel consumption to calculate the estimated emissions.
- **3. Monitoring Plan**: Only the fuel use needs to be monitored because the estimated emissions are calculated from the fuel use. The permittee indicated that burning pipeline quality natural gas was sufficient for demonstrating compliance with the opacity, sulfur content and particulate limitations and the Division agrees. Although the emissions of sulfur dioxide are dependent on the sulfur content of the fuel, the Division does not believe that the sulfur content of the pipeline quality natural gas varies excessively nor is it expected the sulfur content of the natural gas will exceed 1%. The following calculation demonstrates that the estimated particulate emissions for natural gas combustion are only a fraction of the Regulation No. 1 limitation.

$$\frac{\text{B . 7 pool}}{\text{plan scaled div fix}} \times \frac{\text{staded div fix}}{\text{blo Bit}} = \frac{0.05 \text{ pool}}{\text{plan Bit}} \times \frac{0.5 \text{ pool}}{\text{plan Bit}}$$

The permittee is to provide an annual certification that only pipeline quality natural gas is burned.

There is currently no emission factor available for process related emissions. The Division agrees with the permittee determination that, based on information currently available, the processing of the steel would not be expected to produce significant particulate emissions. No compliance demonstration is therefore required.

4. Compliance Status: The Division accepts that this source was in compliance at the time the application was prepared based on the information provided in the application and other information available.

Paint Use

- **1. Applicable Requirements:** This source was grandfathered from the regulatory requirement for a construction permit. Since the area is in attainment for ozone only the State-wide requirement of Section V of Regulation No. 7 requiring the proper disposal of VOC materials applies.
- **2. Emission Factors:** A simple process related emission factor can not be developed for the paint VOC emissions because of the variation in the type of material and the VOC content of the materials used in the painting process. The estimated annual emissions must be calculated from a material use inventory and the appropriate VOC content of the material.
- **3. Monitoring Plan:** The painting VOC estimated emissions will be calculated based on the material consumption as noted above. The Division experience has been that a monthly evaluation of the material use inventory provides for improved accounting of the use of the various materials. The emissions, however, will only be calculated on an annual basis. The Division accepts that this type of VOC source is not expected to create an opacity problem. The permittee must provide an annual certification that the opacity standard has not been exceeded.
- **4. Compliance Status:** The Division accepts that this source was in compliance at the time the application was prepared based on the information provided in the application and the self-certification performed by the applicant.

Rolling Mill

- **1. Applicable Requirements:** This source was grandfathered from the regulatory requirement for a construction permit. Since the area is in attainment for ozone only the State-wide requirement of Section V of Regulation No. 7 requiring the proper disposal of VOC materials applies.
- **2. Emission Factors:** The volatile organic compound (VOC) emissions for the rolling process are released from the rolling lubricant. There is no control device. The emission factor was calculated by the permittee for the Title V application. The emission factor recognizes the amount of material removed with the waste material Since the lubricant is purchased in bulk quantities it is expected the VOC and hazardous air pollutants would change significantly only when there is a change in the product used.
- **3. Monitoring Plan:** The emissions are related to the amount of steel processed; therefore, only the amount of steel processed needs to be monitored. The Division accepts that this type of VOC source is not expected to create opacity exceedances. On this basis, the permittee is to certify annually that the opacity standard has not been exceeded. The Title V application reports the lubricant does not contain any hazardous air pollutants. The operating permit requires the Material Safety Data Sheet (MSDS) for the lubricant be kept on-site to allow the Division to verify that the lubricant does not contain any hazardous air pollutants.
- **4. Compliance Status**: The Division accepts that this source was in compliance at the time the application was prepared based on the information provided in the application and the self-certification performed by the applicant.

Fugitive Particulate Emissions

The provisions of Regulation No. 1 §III.D require existing sources to employ control measures to minimize fugitive particulate emissions. In general, the 20% opacity and no off-property transport are guidelines, not enforceable applicable requirements. The Division can require the submission of a fugitive particulate control plan if there is an exceedance of the opacity guideline or problems created by off-property transport. Enforcement action against existing fugitive particulate sources can be taken only if a permittee continues to operate after a control plan, or a portion of a control plan, has been disapproved, or fails to comply with the provisions of an approved control plan.

Insignificant Sources

Several insignificant sources of emissions related to this production process are noted in the Title V application. These were cited by the use of the general categories provided in the Title V application forms, and no specific source or equipment was noted. On an annual basis the applicant will have to review the estimated emissions from these insignificant sources to determine if they are still insignificant and in compliance.

The Title V application notes 85 to 120 insignificant natural gas combustion sources with a rating of 0.036 to 1 million Btu per hour, and several small storage areas for paints and lubricant.

Alternate Operating Scenarios

No alternative operating scenarios were identified.

Permit Shield

The intent of the permit shield is to provide limited protection to the facility in the event of an error in the evaluation of whether a regulation, or portion of a regulation applies. The facility identifies the issue and presents its position. The Division reviews the position. If the Division and the facility mutually agree on the position, the issue is recorded in the permit. If, at a later date, it is determined that an error was made in the mutual decision, the facility is protected from enforcement action until the permit can be reopened and the correct requirements and a compliance schedule inserted.

For this Title V application, where a request for the shield protection for a specific applicable requirement, or a specific section of an applicable requirement, and a proper justification provided for the request, the shield was granted. The permit shield was not granted for requests for a blanket protection from all portions of a regulation. The Division finds this type of blanket protection is too broad and general for the shield protection to be properly interpreted and granted.

Miscellaneous

From time to time published emission factors are changed based on new or improved data. A logical concern is what happens if the use of the new emission factor in a calculation results in a source being out of compliance with a permit limit. For this operating permit, the emission factors or emission factor equations included in the permit are considered to be

fixed until changed by the permit. Obviously, factors dependent on the fuel sulfur content or heat content can not be fixed and will vary with the test results. The formula for determining the emission factors is, however, fixed. It is the responsibility of the permittee to be aware of changes in the factors, and to notify the Division in writing of impacts on the permit requirements when there is a change in factors. Upon notification, the Division will work with the permittee to address the situation.

Addendum

Prior to the completion of the mandatory 45 day EPA review period for this Operating Permit, the permittee submitted a written request to the Division for the removal of the short term emissions limits from the Permit. The request was made as a consequence of the Air Quality Control Commission actions detailed on the first page of this document.

The Division reviewed the short term limits contained in this Operating Permit in response to the request. Only short term particulate limits had been established in the Permit. These short term limits were established by the formula for fuel burning equipment set forth in Regulation No.1, Section III, §A.1.b; and by the formula for processing equipment set forth in Regulation No. 1, Section III, §C.1.b. Since these limits are established by a specific State standard, they remain applicable, and can not be removed from the Permit. However, in reviewing the short term limits the Division made the determination that the fuel burning particulate emissions are an inseparable part of the process related particulate emissions, and reflected in the process rate limits established by the formula. On this basis, the fuel burning equipment short term limits were removed from the Operating Permit before the permit was issued.